

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for transmitting communications signals to a plurality of mobile terminals, comprising:

processing a received signal at a ground hub;

radiating a first portion of said signal and a second portion of said signal through multiple paths to at least two satellites;

re-radiating said signal from said at least two satellites to an intended mobile terminal;

combining the first portion of the signal and the second portion of the signal at the mobile terminal to reform the signal;

~~perturbing the~~ whereby an orbit of said satellite is being perturbed in inclination and eccentricity of said at least two satellites relative to the same a common geosynchronous reference orbit;

whereby ~~the periods~~ apparent satellite motion of geosynchronous orbits of said at least two satellites about the geosynchronous reference orbit remain substantially ~~constant~~ uniform.

2. (Original) The method of claim 1, further comprising:

radiating a signal from said intended mobile terminal to said at least two perturbed satellites;

re-radiating said signal from said at least two perturbed satellites to said ground hub.

3. (Original) The method of claim 2, further comprising:

determining a relationship between said inclination and said eccentricity of said satellites such that they appear to move at a constant speed along circular paths whose centers are located at the position of a hypothetical reference satellite in an unperturbed geosynchronous orbit.

4. (Original) The method of claim 3, further comprising:

maintaining the geometry of said cluster of at least two satellites such that the distances between any two of said satellites is relatively constant.

5. (Original) The method of claim 4, further comprising:

adding additional satellites to said at least two satellites to augment the satellite constellation.

6. (Currently Amended) The method of claim 4, wherein the

conditions for circular apparent motion of the perturbed satellite relative to said satellite constellation center is approximated by the following:

$$\sin i = 2\epsilon$$
$$t_o = \pm \frac{1}{4} T_{GEO}$$

7. (Currently Amended) A mobile wireless communication system, comprising:

a satellite constellation consisting of a plurality of ~~satellites~~ satellites, each of the plurality of satellites in ~~a slightly~~ an orbit that is a perturbed geosynchronous orbit centered about a geosynchronous reference orbit position;

each of said plurality of satellites being capable of relaying signals between the ground hub and the plurality of user terminals in either direction;

whereby as said satellite constellation appears to rotate at a uniform rate above the geosynchronous reference orbit as viewed by a single user so that the apparent inter-satellite spatial relationships are maintained.

A3
Cont.
8. (Original) The mobile wireless communication system of claim 7, wherein each of said plurality of satellites has its inclination and eccentricity perturbed relative to a common geosynchronous reference orbit.

[9. (Canceled)

9
10. (Original) The mobile wireless communication system of claim 7, wherein the respective distances among the said plurality of satellites is substantially constant.

10
11. (Currently Amended) The mobile wireless communication system of ^{claim 9} ~~claim 9~~, ~~wherein the conditions for circular apparent motion of the perturbed satellite relative to said satellite constellation center is approximated by the following:~~

704410

$$\sin i = 2\epsilon$$
$$t_o = \pm \frac{1}{4} T_{GEO}$$

11

12. (Currently Amended)

The mobile wireless communication system of claim 7, wherein in order for coherent reception of signals by their intended user, said intended user's location must be determined to within a specified tolerance ϵ_x , which is determined according to the following equation:

70450

$$\epsilon_x < \frac{\epsilon_{tol} \lambda_{min} r_{min}}{\Delta D_{x \max}}$$

12

13. (Currently Amended)

The mobile wireless communication system of claim 7, wherein in order for incoherent reception of signals from interfering (non-intended) users, said interfering users must be displaced at least a distance

70450
Tap
Cont.

$$\Delta x_{min} \geq \frac{cr_{max}}{2W_N \delta \Delta D_{x \min}}$$

from the user receiving the signal.

13

10

14. (Original)

The mobile wireless communication system of claim 11, wherein the apparent motions of said plurality of satellites in said satellite constellation can be arranged to appear circular as perceived from any one point in the coverage area.

14

15. (Currently Amended) A method for establishing a link between a ground hub and a plurality of mobile terminals, comprising:

preprocessing a received signal at said ground hub;

transmitting a first portion and a second portion of said signal through different paths to a plurality of satellites in a satellite constellation to an intended one of the mobile terminals;

combining the first portion of the signal and the second portion of the signal at the mobile terminal to reform the signal;

perturbing the inclination and eccentricity of said plurality of satellites relative to a common geosynchronous reference orbit; and

determining a relationship between said inclination and said eccentricity of said plurality of satellites such that they appear to move at a constant speed along circular paths where centers are located at a position defined by a hypothetical reference satellite in an unperturbed geosynchronous orbit.

¹⁵
16. (Original) The method of claim ¹⁴~~15~~, further comprising:

maintaining the periods of geosynchronous orbit of said plurality of satellites substantially constant.

¹⁶
17. (Original) The method of claim ¹⁴~~15~~, further comprising:

maintaining the apparent inter-satellite spatial relationships between said plurality of satellites as they appear to rotate.

¹⁷
18. (Currently Amended) The method of claim ¹⁴~~15~~, wherein said relationship is approximated by the following:

$$\sin i = 2\varepsilon$$
$$t_o = \pm \frac{1}{4} T_{GEO}$$

¹⁸
19. (Original) The method of claim ¹⁴~~15~~ wherein in order for incoherent reception of signals from interfering (non-intended) users, said interfering users must be displaced at least a distance

$$\Delta X_{MIN} \geq \frac{C_{rMAX}}{2W_N \delta \Delta D_{xMIN}}$$

from the user receiving the signal.

¹⁹
-20. (Currently Amended)

¹⁴
The method of claim 15, wherein in

order for coherent reception of signals by their intended user, said intended user's location must be determined to within a specified tolerance ϵ_x , which is determined according to the following equation:

75470

$$\epsilon_x \ll \frac{\epsilon_{tol} \tau_{min} r_{min}}{\Delta_{x min}}$$